

In the Claims:

Kindly cancel claims 37-56 without prejudice.

1-56. (cancelled)

57. A method of determining the location of contact between a moving fingertip and a surface across which it is moving, comprising the steps of:

generating random sound at the location of said contact by a process of substantially continuous frictional interaction between said surface and said moving fingertip,

conducting sound waves from the location of said interaction to at least one microphone via sound-conducting material,

analyzing signals from said at least one microphone, and processing results of said analysis to identify said location of contact.

58. The method of claim 57, wherein said surface is optimized for a combination of smoothness to the sense of touch and generating random sound by friction.

59. The method of claim 57, wherein said step of conducting sound waves includes conducting said sound waves to a plurality of microphones at a plurality of respective microphone locations.

60. The method of claim 57, wherein said step of analyzing signals includes frequency domain analysis.

61. The method of claim 60, wherein said step of analyzing signals includes frequency domain analysis for a plurality of respective microphone signals.

62. The method of claim 57, wherein said step of processing

results includes combining results of frequency domain analysis for a plurality of respective microphone signals.

63. The method of claim 57, wherein said step of processing results includes comparing a result of said analysis with templates representing known locations on said surface.

64. The method of claim 63, wherein a location is identified by interpolating between selected location templates.

65. The method of claim 57, wherein a sequence of touch locations determined over time is used to select a text character or characters for text input to a computer system.

66. A method of remotely generating control signals for a computer-generated environment represented graphically on a display means, wherein remote input means includes a touch sensing surface, orientation sensing means and signal transmitting means for transmitting input data to said computer-generated environment, said method comprising steps of:

generating location data representing the location of a touch event on said touch sensing surface,

generating orientation data representing orientation of said remote input means, and

combining said location and orientation data to generate touch event signals for said computer-generated environment that are independent of the orientation of said remote input means.

67. A touch-operable input device comprising:
a surface for generating random sound by a process of substantially continuous frictional interaction with a moving

fingertip,

at least one microphone arranged to receive sound waves from the location of said frictional interaction via sound-conducting material, and

means for supplying signals to processing means configured to identify a fingertip location by processing signals from said at least one microphone.

68. The touch-operable input device of claim 67, wherein said surface is a solid surface.

69. The touch-operable input device of claim 67, wherein said surface is optimized for a combination of smoothness to the sense of touch and generating random sound by friction.

70. The touch-operable input device of claim 67, further including said processing means.

71. The touch-operable input device of claim 70, wherein said processing means is configured to perform the steps of:

performing a frequency domain analysis of signals from said at least one microphone, and

processing results of said frequency domain analysis to identify said location of contact.

72. The touch-operable input device of claim 71, further including a template memory storing templates of known touch locations.

73. The touch-operable input device of claim 72, including the additional step of comparing a result of said analysis with templates representing known locations on said surface.

74. The touch-operable input device of claim 73, including the further additional step of identifying a location by interpolating between selected location templates.

75. The touch-operable input device of claim 67, including a plurality of microphone means.

76. The touch-operable input device of claim 67, wherein said surface is curved.